



NOTICE OF PROPOSED AMENDMENT (NPA) No 2008-08

**DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION
SAFETY AGENCY**

**AMENDING
DECISION NO. 2003/14/RM OF THE EXECUTIVE DIRECTOR OF THE AGENCY
of 14 November 2003 on**

**Certification Specifications, including airworthiness codes and acceptable means of
compliance for normal, utility, aerobatic and commuter category aeroplanes
(« CS-23 »)**

'Stall speed greater than 113 Km/H (61 knots)'

TABLE OF CONTENTS

A. EXPLANATORY NOTE 3

- I. GENERAL 3
- II. CONSULTATION..... 3
- III. COMMENT RESPONSE DOCUMENT 4
- IV. CONTENT OF THE DRAFT OPINION/DECISION..... 4
- V. REGULATORY IMPACT ASSESSMENT 5

B. DRAFT DECISION 7

- SUBPART B FLIGHT 7
- SUBPART C STRUCTURE 8

A. Explanatory Note

I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to envisage amending Decision 2003/14/RM of the Executive Director of 14 November 2003 (CS-23)¹. The scope of this rulemaking activity is outlined in ToR 23.001 and is described in more detail below.
2. The European Aviation Safety Agency (hereinafter referred to as the Agency) is directly involved in the rule-shaping process. It assists the Commission in its executive tasks by preparing draft regulations, and amendments thereof, for the implementation of the Basic Regulation² which are adopted as "Opinions" (Article 19(1)). It also adopts Certification Specifications, including Airworthiness Codes and Acceptable Means of Compliance and Guidance Material to be used in the certification process (Article 19(2)).
3. When developing rules, the Agency is bound to following a structured process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as "The Rulemaking Procedure"³.
4. This rulemaking activity is included in the Agency's rulemaking programme for 2008. It implements the rulemaking task 23.001 Stall Speed greater than 113 Km/H (61 knots).
5. This NPA is proposed as a result of comments received on NPA 10/2006 "Single Engine Stall Speed" published on 12 July 2006. The Agency has decided that further consultation in accordance with Article 7(5) of "The Rulemaking Procedure" is appropriate, and this new NPA is submitted for consultation of all interested parties in accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the EASA Rulemaking Procedure.

II. Consultation

6. To achieve optimal consultation, the Agency is publishing the draft decision of the Executive Director on its internet site. Comments should be provided within 3 months in accordance with Article 6(4) of the Rulemaking Procedure. Comments on this proposal should be submitted by one of the following methods:

CRT: Send your comments using the Comment-Response Tool (CRT) available at <http://hub.easa.europa.eu/crt/>

E-mail: In case the use of CRT is prevented by technical problems these should be reported to the [CRT webmaster](mailto:CRT_webmaster@easa.europa.eu) and comments sent by email to NPA@easa.europa.eu.

Correspondence: If you do not have access to internet or e-mail you can send your comment by mail to:

¹ Decision No 2003/14/RM of the Executive Director of the Agency of 14.11.2003 on Certification Specifications, including airworthiness codes and acceptable means of compliance for normal, utility, aerobatic and commuter category aeroplanes (« CS-23 »).

² Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC. OJ L 79, 19.03.2008, p. 1

³ Management Board decision concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ("Rulemaking Procedure"), EASA MB/08/2007, 13.6.2007

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Comments should be received by the Agency **before 30 July 2008**. If received after this deadline they might not be taken into account.

III. Comment response document

7. All comments received in time will be responded to and incorporated in a comment response document (CRD). The CRD will be available on the Agency's website and in the Comment-Response Tool (CRT).

IV. Content of the draft opinion/decision

8. The initial issue of CS-23 was based upon Joint Aviation Requirements for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes (JAR-23) at amendment 1. During the transposition of airworthiness JARs into Certification Specifications the rulemaking activities under the Joint Aviation Authorities (JAA) system were not stopped. In order to assure a smooth transition from JAA system to the Agency's system, the Agency has committed itself to continue as much as possible of the JAA rulemaking activities. Therefore the Agency issued NPA 10/2006 (Single Engine Stall Speed) based on a proposal developed by the JAA General Aviation Steering Group (GASR). The NPA 10/2006 proposed a limited increase of the maximum stall speed to 65 knots provided that additional occupant protection standards were introduced as compensating features. Although NPA 10/2006 was the result of a transposed version of the JAA draft NPA 23-XX, Single Engine Stall Speed, that was accepted by the GASR, the Agency concluded from the comments received that this compromise received insufficient support to further pursue this proposal as a decision. In fact only one comment fully supported the NPA 10/2006 proposal, while the other 20 comments proposed changes to the NPA. Most commentators requested a full harmonisation on this subject with the current Federal Aviation Regulation (FAR23) while others were not in favour of increasing the maximum stall speed.
9. Comments raised against NPA 10/2006 indicated that the increased stall speed would result in an increased required landing distance and that therefore the number of suitable landing area could be limited in case of a forced landing. Review of the National Transportation and Safety Board (NTSB) Accident Database⁴ of accident reports involving aeroplanes that have a stall speed above 61 knots show no evidence that supports this view. A forced landing with a single engine-aeroplane in general leaves little option to select an optimal landing area. Even in cases where the aeroplane returned to the airport, there was little time for manoeuvring. There are no measurable differences in injury or fatality rates to aeroplane occupants or people on the ground related to the differences in stall speed. Other criteria like aeroplane handling or pilot skill differences are considered to have a far greater effect on the outcome of a forced landing. Aeroplane handling requirements are not different for aeroplane with a higher stall speed. Comments related to amending the requirements of one engine out climb performance were received during the consultation of NPA 10/2006, but considered outside of the scope of NPA 10/2006.
10. This NPA therefore proposes a harmonisation with FAR 23 for the stall speed requirements of single-engine aeroplanes, and multi-engine aeroplanes of 2722 kg (6000 lb) or less maximum weight.

⁴ Refer to the internet web-page: <http://www.ntsbt.com/query.asp>

The envisage change to CS-23 Subpart B is:

11. Introduction of an exception for the maximum stall speed of 113 km/h (61 knots) limit for single engine-aeroplanes and twin-engine aeroplanes of 2722 kg (6000 lb) or less maximum weight that do not meet the climb performance criteria of CS 23.67(a)(1) provided that compensating structural features are met.

The envisaged change to CS Subpart C is:

12. Introduction of the compensating structural requirements by introduction of specific load factors for this category of aeroplanes mentioned above. In addition test criteria for seat/restraint systems are changed for the increased stall speed.

V. Regulatory Impact Assessment

13. Purpose and intended effect

CS-23 limits the small aeroplane maximum stall speed to 113 km/h (61 knots). To consider new concepts currently applied in other countries (including U.S.A) it is proposed to allow an increase in the maximum stall speed provided that occupant protection standards are enhanced as compensating factors.

The aim is to update CS-23 to incorporate new concepts for the small aeroplane maximum stall speed and occupant protection standards.

14. Options

The identified options for this subject would be:

Do nothing and continue using special conditions as a certification basis in case of exceeding the maximum stall speed requirement; or

To amend CS 23 to harmonise with the FAR 23.

The initially chosen option in NPA 10-2006, to amend the current certification specification to follow the GASR advice providing a limited increase in stall speed, is not considered because of the lack of support for this option.

15. Sectors concerned

This NPA concerns applicants of new Type Certificates or Supplemental Type Certificates with a CS-23 certification basis for single-engine aeroplanes, and those twin-engine aeroplanes of 2722 kg (6000 lb) or less maximum weight with a stall speed above 113 km/h (61 knots).

16. Impacts

Safety

Overall safety of the occupants will not be impacted if the compensating factors are introduced simultaneously with the increase of the stall speed limit. Although a higher stall speed in theory would result in a higher kinetic energy, accident data does not show a higher safety risk for people on the ground. Both options identified have the same safety impact because the requirements are either introduced via special condition or by amending the certification specification.

Economic

A positive economic impact is anticipated when CS-23 is amended because this will reduce the need for issuing Special Conditions when an aeroplane exceeds the current maximum stalling speed and reduce the additional work needed to show compliance with non-harmonised regulations.

Other aviation requirements outside EASA scope

There are no impacts on other aviation requirements outside the scope of EASA, such as security, Air Traffic Management or airports.

Foreign comparable regulatory requirements

A difference has existed between FAR- 23 and JAR-23, and consequently with CS-23, since the publication of the first issue of JAR-23 in 1994 and FAR Amendment 23-44. This NPA now follows the FAR-23, and therefore removes the dis-harmonisation between FAR-23 and CS-23.

17. Summary and Final Assessment

Based on this Regulatory Impact Assessment, the proposal of this NPA is considered as having no overall change to the safety of aeroplane occupants or people on the ground, and a reasonable positive economic impact. Therefore the progress of the proposal to harmonise with the FAR-23 on this subject is justified.

B. DRAFT DECISION

The text of the amendment is arranged to show deleted text, new text or new paragraph as shown below:

- deleted text is shown with a strike through: ~~deleted~~
- new text is highlighted with grey shading: **new**
-

indicates that remaining text is unchanged in front of or following the reflected amendment.

The following amendments should be included in Decision No. 2003/14/RM of the Executive Director of the Agency of 14 November 2003:

Book 1

SUBPART B FLIGHT

CS 23.49 Stalling Speed.

....

(c) **Except as provided in sub-paragraph (d) of this paragraph,** V_{SO} at maximum weight must not exceed 113 km/h (61 knots) for –

(1) Single-engined aeroplanes; and

(2) Twin-engined aeroplanes of 2722 kg (6 000 lb) or less maximum weight that cannot meet the minimum rate of climb specified in CS 23.67 (a)(1) with the critical engine inoperative.

....

(d) All single-engined aeroplanes, and those twin-engined aeroplanes of 2722 kg (6000 lb) or less maximum weight, with a VSO of more than 113 km/h (61 knots) that do not meet the requirements of CS 23.67(a)(1), must comply with CS 23.562(d).

SUBPART C STRUCTURE**CS 23.562 Emergency landing dynamic conditions**
(SEE AMC 23.562)

....

(d) For all single-engined aeroplanes with a V_{SO} of more than 113 km/h (61 knots) at maximum weight, and those twin-engined aeroplanes of 2722 kg (6000 lb) or less maximum weight with a V_{SO} of more than 113 km/h (61 knots) at maximum weight that do not comply with CS 23.67(a)(1):

(1) The ultimate load factors of CS 23.561(b) must be increased by multiplying the load factors by the square of the ratio of the increased stall speed to 113 km/h (61 knots). The increased ultimate load factors need not exceed the values reached at a V_{SO} of 146 km/h (79 knots). The upward ultimate load factor for aerobatic category aeroplanes need not exceed 5.0g.

(2) The seat/restraint system test required by sub-paragraph (b)(1) of this paragraph must be conducted in accordance with the following criteria:

(i) The change in velocity may not be less than 9.4 m (31 feet) per second.

(ii)(A) The peak deceleration (g_p) of 19g and 15g must be increased and multiplied by the square of the ratio of the increased stall speed to 113 km/h (61 knots):

$$g_p = 19.0 (V_{SO}/113)^2 \text{ or } g_p = 15.0 (V_{SO}/113)^2$$

(B) The peak deceleration need not exceed the value reached at a V_{SO} of 145 km/h (79 knots).

(iii) The peak deceleration must occur in not more time than time (t_r) which must be computed as follows:

$$t_r = \frac{.31}{32.2 (g_p)} = \frac{.96}{g_p}$$

Where g_p = the peak deceleration calculated in accordance with paragraph (d)(2)(ii) of this section and t_r = the rise time (in seconds) to the peak deceleration.

(e) An alternative approach that achieves an equivalent, or greater, level of occupant protection to that required by this paragraph may be used if substantiated on a rational basis.